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ABSTRACT

Research on the learner's role as an active participant in the teaching/learning process suggests that modified content instruction holds promise for influencing the development of second language skills. This research indicates that the effectiveness of learning depends on how the student thinks about the new task as well as on the way in which the student uses prior knowledge to construct meaning. Students have been taught active processing skills for first language reading and content tasks, and second language receptive and productive skills. What is now required is conceptualization and research to combine strategy instruction in first language content areas with strategy instruction in second language learning for minority language students. (MSE)

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Learning Strategy Applications to Content Instruction in Second Language Development

J. Michael O'Malley

Research on the role of the learner as an active participant in the teaching/learning process suggests that modified content instruction holds promise for influencing the development of second language skills. This research indicates that the effectiveness of learning depends on how the student thinks about the new task as well as the way in which the student uses prior knowledge to construct meaning. Students have been taught active processing skills for first language reading and content tasks (Weinstein and Mayer, in press; Wittrock 1985) and second language receptive and productive skills (Atkinson 1975; O'Malley et al. 1985). What is now required is conceptualization and research to combine strategy instruction in first language content areas with strategy instruction in second language learning for minority language students.

This paper identifies basic conceptual processes, or *learning strategies*, for learning academic content that may also be used in learning a second language. The paper begins with a brief description of the rationale for viewing learners as active conceptual processors. The paper then discusses the general types of learning strategies found to influence second language learning and the learning strategies reported to be useful in learning academic content. The paper concludes with a description of procedures by which second language learning can be combined with a modified form of content instruction so that minority language students are introduced to learning strategies as they are exposed to academic content in English.

Learners as Conceptual Processors

In recent years explanations of classroom learning have included what the learner does with new information as well as what the teacher does in presenting the information (Weinstein and Mayer, in press). This emphasis on the student as a learner coincides with the shift from behavior-

or stimulus-oriented explanations of learning to explanations based on cognitive psychology or on the mediating conceptual processes involved in learning. Accompanying this shift, research on classroom learning extended beyond the teacher, who controlled the stimuli for instruction, to the learner and how the learner conceived the new information. In this cognitive view, students actively process new information and use special learning strategies to acquire ideas and concepts more effectively. As Schulman (in press) notes, "the consequences of teaching can only be understood as a function of what that teaching stimulates the learner to do with the material."

Learners are viewed in the cognitive approach as able to direct and influence the kinds of conceptual processes they use and to learn new conceptual processes as the situation demands (Brown, Bransford, Ferrara, and Campione 1983). They can exercise executive or *metacognitive* processes that entail planning for and monitoring learning as well as evaluating the success of a learning activity. These metacognitive processes often appear to operate independently of the specific nature of the learning activity. Learners also exercise *cognitive* strategies that involve direct conceptual manipulation of the specific learning task, rehearsal strategies, reorganization of new information, or elaboration of information through special ways of constructing meaning. These special ways of constructing meaning may involve relating new ideas to information learned in the past or relating one new idea to another. In addition, learners may use *social/affective* strategies in which the learners acquire or verify new information through social interaction with either peers or instructional staff. Peer cooperation and asking questions for clarification are examples of social/affective learning strategies.

Some of the principal findings from research based on this cognitive view of learning (Weinstein and Mayer, in press) are derived from studies of reading comprehension and general problem solving. The use of learning strategies appears to be developmental, appearing rarely at age 5, but appearing in preliminary form with some learners about age 6–7, and in a more stable form among most learners by ages 10–11. Strategies are used regularly by more effective learners and rarely or inefficiently by less effective learners. Because strategies are used in different ways by students, it is important to understand how the learner conceives of the learning task. For example, students who believe that reading comprehension will result from learning more vocabulary will not make effective use of elaboration and inferencing. Strategies can be trained among students who are not accustomed to using them, thereby increasing the effectiveness of learning. This involves more than simply embedding the strategies in the curriculum. Teachers should make an active effort to teach the strategies and to show how they can be used in learning. The teacher thereby provides the learner with a set of tools that can be

generalized to other learning tasks, leading to autonomy in learning for the student.

Most importantly, strategies can be used in content area instruction as well as in reading comprehension, thereby extending the applications of the cognitive view of learning into other areas of the curriculum. Learning strategies essentially identical to those discussed above with variations appropriate to the subject area have been used in mathematics, sciences, and social sciences. The thrust of these strategies is on providing students with tools for learning that are more efficient and effective than simple repetition and rote learning of facts. In mathematics, for example, students are taught strategies for handling word problems that involve analysis into the basic mathematical operations required for problem solution (Cuevas 1984). In content area tasks that involve reading, strategies shown to be effective in reading comprehension in general can be used with science materials, e.g., summarizing, elaboration, and note taking (Wittrock 1985). In both science and math, efforts have been made to understand the student's conceptualization of the problem as a necessary step in demonstrating how the student's view can be extended to approximate scientific knowledge. This involves more than just teaching what the child does not know but providing experiences that build on existing concepts. As Wittrock (1985, 5) notes, "the processes of learning and memory center on getting meaning from experience by generating relations between knowledge and events or ideas in the classroom."

Strategies in Second Language Learning

Recent theories of second language learning indicate that conceptual processes play a major role in developing receptive and productive language skills. For example, Wong Fillmore and Swain (1984) pointed to the interaction of cognitive processes with social and linguistic processes as the key to understanding second language acquisition. Among the cognitive processes identified by Wong Fillmore and Swain were inferencing, association, and categorization or grouping strategies. Similarly, Bialystok (1981) gives a prominent role to learning strategies in her model of second language learning and identifies four classes of strategies: inferencing, monitoring, formal practicing, and functional practicing. She suggests that the strategies may vary depending on the learning task.

Research as well as theory suggests that learning strategies assist learning a second language. Studies of "good language learners" have indicated that individuals who have been successful in learning second languages use a variety of strategies to assist their learning (Naiman, Froelich, Stern, and Todesco 1978; Rubin 1981). Both cognitive and metacognitive strategies have been used by second language learners to

assist learning receptive and productive language skills (O'Malley et al. 1985). Among the metacognitive strategies are selective attention, monitoring, and self-evaluation. The cognitive strategies reported to be used by students include inferencing, grouping, imagery, auditory representation (sounding the word out in one's mind), note taking, and elaboration. In addition, second language learners have been found to make effective use of social/affective strategies such as peer cooperation and questioning for clarification.

Since many of the same tasks are involved in second language learning and native language reading comprehension and problem solving, the strategies used by learners in these areas are often similar. For example, first language reading comprehension is a receptive skill that has strong parallels with reading comprehension in a second language and, in addition, with listening comprehension. Strategies such as selective attention, monitoring, inferencing, elaboration, grouping, imagery, and note taking may be fundamentally similar for learning in both first and second languages. Similarly, writing in a first language is a productive skill that has parallels with second language writing and with oral production. Strategies that are useful in language production such as advance preparation, resourcing (using reference documents), and transfer can be applied to learning tasks irrespective of the language used or the mode of production.

A Modified Form of Second Language Content Instruction

Modified content instruction in second language learning incorporates learning strategies required for effective learning and adapts these for use by students who are not fully familiar with the second language. Modified content courses in English should be made available to minority language students prior to content area exposure in mainstream courses so that the students have an opportunity to learn the skills required for successful performance. These students can be expected to have difficulty in learning the academic vocabulary and concepts of content areas when the students are also attempting to consolidate their expanding familiarity with English. The use of learning strategies in the content areas as well as in English as a second language along with familiar teaching strategies such as providing comprehensible input will assist these students in gaining the skills they require. The students will become acquainted with the lexicon and concepts in the content domain as they are learning effective strategies that can be used later in the mainstream courses. What is needed is a firm grounding in the content area concepts that can be established most effectively with modified content instruction in which learning strategies are incorporated.

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